# USER MANUAL

for the

# RAMDISK* 128K MEMORY SYSTEM

Manufactured By

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## NOTICE

This program is sold only for use by end-users who have previously purchased a copy of the Atari Disk Operating System 2.0S, the software for which is not available from Axlon Inc. Any copying of the resulting Ramdisk Memory Management Software without the express authorization of the copyright owner of the Atari DOS 2.0S software may be unlawful.

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## 1. Introduction

The classic problem with personal computer systems has been limited memory and slow mass storage devices. Your new Ramdisk 128K Memory System eliminates both of these problems.

The Ramdisk 128K Memory System has been designed to operate in combination with the ATARI* 800* Computer System. The memory is organized into eight 16K segments. Segment switching is accomplished by writing a number to any address in the range 0FC0-0FFF(hex) OR CFC0-CFFF(hex). When the Ramdisk 128K Memory System is used with the Memory Management Software (abbreviated to MMS throughout this manual) it is treated as a 'disk' drive. Your MMS is compatible with Atari DOS 2.0S, Atari software and cartridges. Disks and files created with MMS can be used with Atari DOS 2.0S.

## 2. Getting Started

The package should contain the following:

* The Ramdisk 128K Memory System printed circuit board.
* A binder containing this manual.
* A floppy disk with Axlon System Software and Diagnostic Programs.

### 2.1 System Requirements

* An ATARI 800 Computer System.
* A disk with Atari DOS 2.0S on it.
* Two 16K RAM modules or one 16K and one 8K RAM module.
* TV set or monitor.

### 2.2 Installation

1. Turn off all power to the ATARI 800 Computer System.
2. Remove the cover for the RAM modules.
3. Install a 16K RAM module in the first slot past the O.S. card. Install a 16K or 8K RAM module in the last slot in the ATARI 800 Computer.
4. Place the Ramdisk 128K Memory System printed circuit board in the slot between the RAM cards. The side that says 'Ramdisk' should face the keyboard. (It will not fit if you try to insert it backwards.)
5. Replace the cover.
6. Generate a Memory Management Software disk. (See below).
7. The system is ready for use.

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## 2.3 Generating the Memory Management Software

You can generate the Memory Management Software using the CREATE program. The CREATE program guides you through the entire process, and verifies that you have provided Atari DOS 2.0S. You can also generate the MMS yourself, but this requires an understanding of Atari DOS 2.0S. See Copies and Backups for a discussion of that procedure.

The CREATE program does not copy the ASSIGN, NOMEMSAV, RAMSCAN, MEMTEST, or RAMDISK.DOC files onto the new MMS disk. If you want these on the resulting disk you must do this yourself.

NOTE - The disk supplied by Axlon does not have Atari DOS 2.0 on it. The MMS will not 'boot' without Atari DOS 2.0S on the same disk.

To use the CREATE program:

1. Turn off the ATARI 800 Computer System.
2. Insert a BASIC cartridge.
3. Insert an Atari DOS 2.0S disk into disk drive 1.
4. Turn on the computer and "boot" Atari DOS 2.0S.
5. Remove the Atari DOS 2.0S disk, and insert the Axlon supplied disk into the ATARI 810 Disk Drive.
6. Type RUN "D:CREATE".
7. The CREATE program will guide you through the create procedure. You will need a blank disk to put the resulting software onto.

The CREATE program is discussed in further detail in section 9.

## 3. Operation of the Memory Management Software

Your Ramdisk 128K Memory System can be operated as a pseudo disk drive with the Memory Management Software (MMS). You can write programs with BASIC or other languages and access your Ramdisk 128K Memory System with the same commands you would use to access an ATARI 810 Disk Drive. Disks and files created with MMS can be used with Atari DOS 2.0S.

You can write software for your Ramdisk 128K Memory System that does not use the MMS. A separate section, Programming the Ramdisk 128K Memory System Yourself, explains how.

### 3.1 Supplied Software

A disk is supplied with your Ramdisk 128K Memory System package. An explanation of each program or file on this disk can be found in this manual. The disk contains:

CREATE - A program to create Memory Management Software disks.
AUTORUN.SYS - The software that becomes the Memory Management Software using the CREATE program.
ASSIGN - Program to change the default Ramdisk Memory assignment from D4:.
RAMSCAN and MEMTEST - Memory test programs.
NOMEMSAV - Program to alter the MEM.SAV capability.
RAMDISK.DOC - This manual, ready to print.

The Axlon supplied disk DOES NOT contain Atari DOS 2.0S. The Axlon supplied disk does not contain MMS. DOS 2.0S must be purchased separately and modified using the CREATE program contained on the Axlon supplied disk to produce the MMS. The Axlon supplied disk will not 'boot' by itself without using the CREATE program first.

### 3.2 Copies and Backups

After using the CREATE program (section 2.3) you have a complete software package. You can make duplicates of the MMS disk the way you would copy any other disk.

To make MMS disks without using the CREATE program, copy the AUTORUN.SYS file to a DOS 2.0S disks, with one restriction: location 70A(hex) must be set to 0F(hex). (This is location 1802 decimal, with a 15 decimal). Please see the AUTORUN.SYS section.

You can also, of course, use the CREATE program to make new MMS disks.

## 4. Memory Management Software (MMS)

The Memory Management Software is a program that works with the Atari DOS 2.0S to allow it to access the Ramdisk 128K Memory System as a pseudo disk drive. This manual assumes that you are familiar with Atari DOS 2.0S. If you are not familiar with Atari DOS 2.0S, please refer to the Atari DOS 2.0S manual.

The MMS enables you to use your Ramdisk 128K Memory System as a 'disk drive' (with a default assignment of D4:). The MMS-Atari DOS 2.0S combination operates the same as Atari DOS 2.0S except that:

- The "WRITE DOS TO DISK" (H) function cannot be used.
- The "CREATE MEM.SAV" (N) function cannot be used.
- The MEM.SAV file functions are always in operation with MMS unless the NOMEMSAV program has been used. MMS eliminates the MEM.SAV disk file.

NOTE - explanation of MEM.SAV:

With Atari DOS 2.0S the MEM.SAV file preserves the memory area occupied by DOS when you go to DOS from a program. This capability allows you to go from BASIC to DOS and back while preserving in memory any BASIC program you were working on. This is accomplished by "swapping" that memory area into a disk file named MEM.SAV.

The MMS does not use a MEM.SAV file. The information stays in the same memory segment and is swapped back in when that segment is selected.

Please see the section on the NOMEMSAV program.

### 4.1 Using MMS

The MMS gives the Ramdisk 128K Memory System a default assignment of D4:. References to D4: through MMS will refer to the Ramdisk Memory. This assignment can be changed using the ASSIGN program on the disk supplied by Axlon. Another section of this manual explains the ASSIGN program.

When you "boot" the MMS disk you should refer to the Ramdisk Memory as "D4:" and it will act like a disk drive. Immediately after the "boot" the Ramdisk Memory is just like a blank, formatted "disk" with no data on it. A "directory" of D4: will yield the same information as a directory of a "real" disk.

### 4.2 An Example

To follow this example, insert a BASIC cartridge into the cartridge slot and be sure the Ramdisk 128K Memory System printed circuit board is properly installed.

- "Boot" your MMS disk. When the READY appears in BASIC, type DOS.
- Take a disk with several BASIC programs on it, and put it in drive 1.
- Use the MMS "J" command to duplicate FROM D1: TO D4:. This will take a little time, because the entire disk in drive 1 is read into the Ramdisk Memory. (You could

also do a COPY D1:*.* TO D4:*.*, or copy specific files only).
- When the programs have been read into the Ramdisk Memory you may remove the real disk from drive 1.
- Type "B" to get back into BASIC.
- From BASIC, run a program using RUN "D4:program name". You will see how fast the program is loaded and executed compared with using a "real" disk.
- BREAK from the program and run a different D4:program.

If you want to change a program and save it, type SAVE "D4:program name" exactly as you would with a "real" disk. Referencing the Ramdisk Memory from inside programs is the same as referencing a "real" disk in a regular ATARI 800 Computer System. If your program uses "D4:" it will need no modification at all. It probably uses "D1:", and you can change the Ramdisk Memory to "D1:" using the ASSIGN program.

NOTE - You lose the data in the Ramdisk 128K Memory System when you turn it off. If you have changed that data and want to keep the changes, duplicate the data BACK to a "real" disk before you turn the machine off!

4.3 Some ideas for using Your Ramdisk 128K Memory System as a 'Disk'.

If you have an application such as a mailing list or a data base, you could begin your session by copying your data disk into the Ramdisk Memory (D4:). The program can reference D4:, or you can use the ASSIGN program to change the assignment from D4:. For the entire session, you will not need to wait for a "real" disk to operate. This will greatly increase efficiency and decrease frustration. When the session is completed, duplicate the data in the Ramdisk Memory back to the data disk (if any changes were made).

Disk sorts would obviously be handled very fast by the MMS. Inventory, or other disk lookup and disk update programs would also obviously benefit.

When you have several programs that are "chained" or overlayed, you would save a lot of time by putting them into the Ramdisk Memory first.

When you have to duplicate a disk several times, or a file to several disks it saves a lot of time to copy the source disk into the Ramdisk 128K Memory System. Then you can dupe from D4: continuously without having to wait for the read part of the process every time.

The only disadvantage of the MMS is the time it takes to load the necessary information from the real disk drive at the start of your session, and the time it takes to put the data back when you are done.

NOTE - Your MMS has some overhead. Using "PUT BYTE" routines will cause large amounts of data to be transferred much slower than using "PUT RECORD" routines. The overhead of counting, and getting down to the right level of subroutines is lower if you transfer a lot of bytes (record) when you get there, instead of one byte.

NOTE - It is not practical to segment-select Ramdisk Memory from BASIC without the MMS. If you accomplished the POKES that switched segments, you would most likely switch the area that your BASIC program was stored in right out from under you.

4.4 MMS Error Messages

There are four error messages that you might encounter while using MMS that you would not encounter with Atari DOS 2.0S. These are:

First:

"INCORRECT MEMORY CONFIGURATION.
PLEASE SEE RAMDISK MANUAL.
STARTUP OF SYSTEM IS TERMINATED."

This message occurs when the MMS is being booted with no memory card (8K or 16K) in the last slot in the ATARI 800 Computer System. Turn off the machine and insert an 8K or 16K card.

The next message is:

"THE RAMDISK CANNOT BE FORMATTED,
PLEASE SEE RAMDISK MANUAL.
START-UP OF SYSTEM TERMINATED.
TO RESTART LOAD PRESS SYSTEM RESET."

When the MMS is booted it tries to 'format' the Ramdisk 128K Memory System. The format may be unsuccessful because of a memory problem or because of an improper MMS.

The next error message:

"CAN'T PROCESS DUP.SYS FILE.
CHECK FOR FILE ON DISK.
START-UP OF SYSTEM IS TERMINATED.
TO RESTART LOAD PRESS SYSTEM RESET."

The MMS had trouble reading the DUP.SYS file that is part of Atari DOS 2.0S. Either the file is not on the disk or cannot be read.

The last error message:

"RAMDISK IS NOT IN CARD SLOT 3,
PLEASE SEE THE RAMDISK MANUAL.
START-UP OF SYSTEM IS TERMINATED.
TURN OFF COMPUTER AND INSERT RAMDISK."

This error occurs when you try to boot the MMS disk into an ATARI 800 Computer System with no Ramdisk 128K Memory System printed circuit board in slot 3. It may be in another slot, or not in the computer at all.

## 5. Non DOS Systems

Segment switching is accomplished by writing the number of the desired segment to any location within the range (0FC0-0FFF(hex) or CFC0-CFFF(hex)). This works ok with the MMS because the memory management code always resides in the 0FC0-0FFF(hex) area. The code in this area does not change so segment selection does not occur.

Programs that do not plan for a DOS or MMS in this area might write to these addresses with disastrous results. Certain versions of FORTH, and certain game programs could cause segment switching to occur while the programs are operating. This would cause the program to fail.

The only solution to this problem is to modify the programs or remove the Ramdisk 128K Memory System printed circuit board while using these programs.

## 6. The RAMDISK.DOC File

This file contains this manual. It is formatted for printing on an ATARI 825* 80-Column Printer. To make copies of the manual, use the MMS C (copy) function. Copy from D:RAMDISK.DOC to P:.

## 7. The NOMEMSAV Program

There is a "bug" in the Atari DOS 2.0S that the NOMEMSAV program helps you avoid. The bug shows up when you are using BASIC and go to DOS to load and run binary programs that return to the system via DOSVEC, (the system DOS entry vector). If you then go back to BASIC the system "hangs up". This happens because the "MEM.SAV" area was changed when program flow went through the DOSVEC vector.

For example, this problem will show up if you go from BASIC to DOS, use the ASSIGN program, AND do a copy, and finally return to BASIC.

To avoid these problems you should run the NOMEMSAV program. The NOMEMSAV program eliminates the MEM.SAV function entirely until you turn the computer off. The effect of this is that you will not be able to go from BASIC to DOS and back and have the BASIC program still in memory.

To run the NOMEMSAV program, use the "L" function (binary load) from the MMS menu. The program will load very fast, and automatically run. You will be returned to the "SELECT ITEM OR RETURN FOR MENU" prompt of the MMS. It will seem as though nothing has happened, but the program has been loaded and executed.

## 8. The ASSIGN Program

You can change the default assignment of D4: using the ASSIGN program.

To load this program, get to the MMS menu, and use the "L" function. The file name is ASSIGN. It will start automatically after loading.

To change drive number assignments, press the SELECT key. Each time the SELECT key is pressed, the order of assignment changes. The screen will show the current drive configuration. Press START when the assignment is how you want it. You will be returned to the MMS menu.

The change is made at the same time as the screen is updated. Exiting from the program by pressing RESET will cause the drive assignments to be configured as they were when RESET was pressed.

All keyboard input is ignored.

Changing the default assignment also changes the assignments of the other disk drives. You do not have to change the drive number selection switches on the back of the disk drives. The changes are shown on the "map". When the map says that, for example, "D2: CURRENTLY REFERS TO DRIVE 1" that means that a reference to D2: will cause the computer to look for data on the disk drive with the switches set at 1.

## 9. The CREATE Program

The CREATE program puts the following files on the resulting disk:

- DOS.SYS - Atari DOS 2.0S
- DUP.SYS - Also Atari DOS 2.0S
- AUTORUN.SYS - Automatically is loaded when the disk is booted, this is the Memory Management Software.

The CREATE program must be run on Atari DOS 2.0S. It will ask for the Atari DOS 2.0S disk, the disk supplied by Axlon, and a disk to put the resulting Memory Management Software onto.

Error messages will display the BASIC error number, and where the error occurred. For example, "ERROR 144 IN WRITE OF AUTORUN.SYS FILE".

Other error messages are:

NOT ENOUGH MEMORY FOR CREATE PROGRAM
The CREATE program needs a minimum of 40K. However, since the MMS does not work without at least one 16K and one 8K card anyway, this should not be much of a problem.

CANNOT OPEN XXX.YYY FILE, where XXX.YYY is DUP.SYS or AUTORUN.SYS.
The file is not on the disk. You are using the wrong disk.

## 10. The AUTORUN.SYS Program

The Memory Management Software (MMS) is contained in an AUTORUN.SYS program. DOS 2.0S automatically loads and executes the AUTORUN.SYS program after booting. The MMS AUTORUN.SYS program can be copied to other DOS 2.0S disks IF address 70A(hex) is set to 0F(hex). This means that you should, from BASIC, do a POKE 1802,15, and the H (write DOS to DISK) function before copying the AUTORUN.SYS program over. If that disk already has

an AUTORUN.SYS program on it, that code should be appended to the MMS program.

Code can be added to the AUTORUN.SYS file by appending it to the end. (More code can then be appended to THAT). Other AUTORUN.SYS files should be appended AFTER the MMS. BE CAREFUL! Do not erase the existing AUTORUN.SYS file!

To make your own addition to the autorun file:

1) Write an assembly language program that operates as a subroutine. It should end with an RTS (ReTurn from Subroutine instruction).

2) The last bytes in the binary file must be the start address of the program, in location 2E0(hex). To accomplish this the last lines of the source program should be:

```
*= 2E0(hex)   ;program counter to 2E0
.WORD PRGSTRT ;PRGSTRT is address of start of your code
```

3) Append this to the end of the AUTORUN.SYS file, using the DOS COPY function, with a "/A".

NOTE - Placing the address of your program in 2E0(hex) tells the DOS to suspend loading the AUTORUN.SYS file, and execute the code. (This is a standard Atari DOS 2.0S function). The RTS will return you to the AUTORUN.SYS file, and it will continue to load and execute until the end of the file is reached.

NOTE - RS232

The RS232 AUTORUN.SYS program should be appended to the MMS AUTORUN.SYS program to use RS232 with MMS.

NOTE - A fast way to have the Ramdisk 128K Memory System 'drive' assignment configured differently from the default D4:

The system keeps a "drive table" of four bytes at location 1506(hex). The position in the drive table is the "n" of Dn:. When you refer to D2:, the MMS looks at the second byte of the drive table. Normally this byte is a 02, referring to drive 2, and MMS looks on drive 2. If there were a 01 there, it would access drive 1, even though you referred to D2:.

The normal configuration of the drive table is 1,2,3,"R". With an ASCII "R", 52(hex) designating the Ramdisk 128K Memory System assignment. The ASSIGN program alters this.

If you wanted the system to boot up with other than a normal configuration you would change the drive table and do a binary save /A (with an append) of the four bytes at 1506(hex) to the end of the AUTORUN.SYS file. For example, if you had an R,1,2,3 beginning at location 1506(hex), the Ramdisk Memory would be referenced as "D1:", and "D2:" would reference the disk drive set as drive 1.

## 11. Programming the Ramdisk 128K Memory System Yourself

You can place one of eight 16K memory segments at addresses 4000(hex) - 7FFF(hex). Segment selection is controlled by writing a segment number to ANY address in the range 0FC0-0FFF(hex) OR CFC0-CFFF(hex). The last 3 bits of ANY data written to these addresses selects the segment. Writing a 03 to address 0FDE(hex) will select segment 3. Writing a B3(hex) to address CFE3(hex) will ALSO select segment 3. The selected segment is now addressable between 4000(hex) and 7FFF(hex).

The MMS ALSO resides in 0FC0-0FFF(hex). We suggest that when you write programs that work with the MMS, you address the CFC0-CFFF(hex) range.

### 11.1 Some Ideas for Uses of Your Ramdisk 128K Memory System

Think of the Ramdisk 128K Memory System as several 16K "blocks". You can use these blocks for data, tables, or program overlays.

Probably the most interesting (and challenging) use of the extra memory is for graphics. First of all, since you have 16 separate areas immediately available at the same address, you can instantly switch to 16 different screens. This obviously is accomplished much faster than copying an entire screen. It is also accomplished faster and easier than altering the display list to find its screen information in a different memory area. Since it is the same memory area, switching segments puts the different information on the screen. You could also switch in the middle of a screen, seeing part of your screen from one area, and part from another...

The above, of course is accomplished without any memory management. If you decide to use ALL the available RAM, you have 131,072 (128*1024) available. That is 131 graphics mode 0 screens, 255 graphics 1 screens, 502 graphics 2 screens, or 33 graphics 7 screens loaded in and ready to go. Get the picture?

## 12. RAMSCAN DIAGNOSTIC VERSION 1.3

The RAMSCAN diagnostic is designed to perform the following four memory tests:

1) Range Test
2) Zeroing Test
3) Memory Uniqueness Test
4) Rolling Bit Test

### 12.1 Operating Instructions

"Boot" up your system with the MMS disk. If you have a cartridge such as BASIC, you must type DOS. From the DOS menu, type L for a binary load, and load the file RAMSCAN.

### 12.2 The Range Test

This test finds the last addressable memory location in the segment being tested. When the address found is less than expected, the segment select chips may be in error. (It is a good idea to retest & verify errors).

### 12.3 The Zero Test

This test assures that each bit at the test location can be turned off (represented by a 0). If an error is detected, RAMSCAN will display 'FAIL' and the following message:

```
AT ADDRESS xxxx
                          76543210
BIT IMAGE AT ADDRESS      xxxxxxxx
```

A '1' in the bit image indicates which bits were not zeroed at the address displayed.

### 12.4 The Memory Uniqueness Test

This test locates possible crossed addressing problems. That is, a bit turned on at one location will simultaneously turn on a bit at another location. If an error is detected, RAMSCAN will display 'FAIL' and the following message:

```
AT ADDRESS xxxx
                          76543210
BIT IMAGE AT ADDRESS      xxxxxxxx
```

The address points to the receiving address of the crossed address lines. A '1' in the bit image indicates which bits were turned on by the crossed addressing. This failure can be caused by power spikes.

## 12.5 The Rolling Bit Test

This test assures that each bit in each test location can be turned on and off. RAMSCAN does this by rolling a '1' bit (high to low) through each location. If an error is detected, RAMSCAN will display 'FAIL' and the following message:

```
AT ADDRESS xxxx
                          76543210
BIT UNDER TEST (1)        xxxxxxxxx
BITS BEFORE TEST          xxxxxxxxx
BITS AFTER TEST           xxxxxxxxx
```

To interpret this message one must compare the three images given and know what the "normal picture" should look like. Since it allows the test to pass and is never displayed, an explanation of a normal picture follows:

The BIT UNDER TEST (BUT) shows which bit the '1' is rolling into.

The BITS BEFORE TEST (BBT)shows which bit the '1' is rolling from. If the BUT is at 7, then the BBT will be all zeroes.

The BITS AFTER TEST (BAT) shows the bit contents following the test. Normally the BAT should equal the BUT. An unequal condition causes an error.

Note

1) As each test is completed, 'PASS' will be written under each TEST HEADER.
2) 'RAMSCAN Had Normal End' will be displayed upon completion.
3) RAMSCAN displays the present bank being tested and all banks that do not respond.

## 12.6 Restrictions and Constraints

1) RAMSCAN will ignore any memory occupied by system or user cartridges.
2) All addresses are displayed in HEX notation.
3) 16K memory modules must reside in RAM slots 1&3. (An 8K may be used in slot 3).

## 12.7 RAMSCAN's Menu

RAMSCAN is interactive with the user. The menu will appear under 3 conditions:
1) An error.
2) At end of execution.
3) When the space bar is hit RAMSCAN will stop, keep its place and wait for option.

12.8 Menu Options

R - RETEST/BOARD will rerun RAMSCAN on all banks of the Ramdisk 128K Memory System.

C - CONTINUE TEST will continue the test from an interrupt due to an error or operator intervention.

O - RETEST BANK will return RAMSCAN to the bank being tested. This is useful in diagnosing software errors.

N - NEXT BANK will skip to the beginning of the next bank and begin testing.

RESET - Performs the cold start routine.

NOTE - it is not necessary to type RETURN following any option key.

12.9 A Word of Caution

Not all errors are due to faulty boards. Intermittent or inconsistent errors may be caused by dirty contacts in the ATARI 800 Computer System or the board.

13. The MEMTEST Program

The MEMTEST program tests for refresh problems and memory fade problems. MEMTEST works by loading a pattern into memory, waiting, then verifying that the pattern is the same. MEMTEST allows you to determine the time between loading the pattern and verifying.

To run MEMTEST, use the BINARY LOAD "L" function of the MMS. The program name is MEMTEST. MEMTEST will start automatically after loading.

The screen will show what banks of the Ramdisk 128K Memory System were addressable. Below, you will see the menu message:

ENTER:
R. TO REVERSE PATTERN
SPACE. TO INITIALIZE
X. TO EXIT

Reversing the pattern changes from 10101010 to 01010101 (or vice versa). SPACE causes the pattern to be written to all of the Ramdisk 128K Memory System.

After pressing SPACE the pattern is written into memory and the menu message changes to:

ENTER:
R. TO REVERSE PATTERN
SPACE. TO TEST
X. TO EXIT

You may wait for as long as you wish before pressing SPACE to verify that the pattern is unchanged. If you press R, you are returned to the INITIALIZE screen and the pattern is reversed.

You may turn off the machine at any time. Pressing X causes the disk to be rebooted because the Memory Management Software that was in memory is destroyed by the test. The MMS disk must be in the disk drive 1 when you press X.

## 13.1 Memory Failures

If MEMTEST finds a problem, the address where the problem occured is displayed, and the bit image at that address is displayed. Also, a C. TO CONTINUE option is added to the menu. Continuing will scan past that address for more errors.

## 14. Some Common Questions

What happens when I turn off the machine?
See Page 5, Section 4.2, Note 1.

Can I switch banks from BASIC?
See Page 5, Section 4.3, Note 2.

How do I make copies of the Memory Management Software?
See Page 1, Section 2.3.
See Page 3, Section 3.2.
See Page 8, Section 9.

How do I change "drive" assignments?
See Page 7, Section 8.
See Page 9, Section 10, Note 3.

Does the Ramdisk 128K Memory System work with all programs?
See Page 6, Section 5.
See Page 7, Section 7.

What can I use the Ramdisk 128K Memory System For?
See Page 5, Section 4.3.
See Page 9, Section 11.1.

How do I add other AUTORUN.SYS files, such as RS232?
See Page 8, Section 10.

# The New Switchable RAMDISK 128K Memory System

Axlon RAMDISK 128K Memory Systems are now equipped with a switch. This switch disables the ability of the card to switch between the eight 16K banks and makes it operate exactly like a 16K memory card.

The position for normal RAMDISK 128K Memory System operation is towards the label. This is also toward the keyboard when installed. The position for 16K-only operation is away from the label.

If the switch is away from the RAMDISK label only one 16K bank of the card is available to the computer, and the other seven banks can not be selected.

If the switch is towards the RAMDISK label bank selection is enabled and 128K is available.

When operating your computer with programs that do not use DOS 2.0S and are not designed to work with the RAMDISK 128K Memory Management System you should move the switch away from the label. This disables the bank select ability. Some programs that do not use DOS 2.0S, such as the Atari Word Processor, cause the RAMDISK Memory System to select different 16K banks during program operation. This will cause the program to stop working.

# AXLON INCORPORATED
# LIMITED WARRANTY

AXLON warrants that for a period of one year from your date of purchase, your AXLON product will be free from defects in materials and workmanship under normal use. This warranty extends only to the original purchaser.

AXLON will, at its option, repair or replace, without charge, the product or any of its components which it finds defective.

To obtain warranty service you must either bring or mail your AXLON product together with proof of purchase to Axlon Incorporated, 170 N. Wolfe Road, Sunnyvale, California 94086, (408) 730-0216. If you mail the product to AXLON, you pay the shipping charges to the factory. Parts and service under this limited warranty must be obtained through AXLON.

All implied warranties of merchantibility and fitness for intended use are limited in duration to the duration of this written warranty. This warranty does not cover, and AXLON shall not be liable for, incidental or consequential damages.

Some states do not allow limitations on how long an implied warranty lasts or limitations or exclusions of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This limited warranty does not cover anything resulting from misuse, abuse, neglect, alteration, modification, attempted disassembly, or unauthorized repair or service. This limited warranty does not cover any representation or warranty made by any person beyond the provisions of this limited warranty.

You must establish proof of purchase to obtain warranty service. You may do so by completing the Warranty Registration Card and mailing it to AXLON.

This limited warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

# AXLON INCORPORATED
## WARRANTY REGISTRATION CARD

Please answer the questions below. This allows us to provide you with efficient service should your product require it. In addition, you will automatically be placed on our mailing list to keep you informed of new products and services.

NAME

ADDRESS

CITY STATE ZIP CODE

DATE PURCHASED

PRODUCT PURCHASED

PRODUCT SERIAL NUMBER 001034

| TYPE OF STORE | STORE WHERE PURCHASED |
|---|---|
| ☐ COMPUTER STORE | |
| ☐ ELECTRONIC SPECIALTY | |
| ☐ OTHER | |

WHERE HAVE YOU SEEN OR HEARD ABOUT THIS PRODUCT?

☐ MAGAZINE AD ☐ A FRIEND ☐ NEWSPAPER AD

☐ SAW IN STORE ☐ OTHER _____

AGE

SEX ☐ M ☐ F

MARRIED? ☐ YES ☐ NO

COMPUTER SYSTEM OWNED

NUMBER OF DISKS ON YOUR SYSTEM

PRIMARY USE ☐ HOME ☐ BUSINESS TYPE OF BUSINESS

WHAT MADE YOU DECIDE ON THE AXLON PRODUCT?

AXLON INC.
170 N. WOLFE ROAD
SUNNYVALE, CA 94086
(408) 730-0216

AXLON

PLEASE
PLACE STAMP
HERE

AXLON INCORPORATED
170 N. Wolfe Road
Sunnyvale, CA 94086